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## NEW HYDROBIIDAE FROM OZARK CAVES

BY LESLIE HUBRICHT

*Amnicola stygia*, new species.

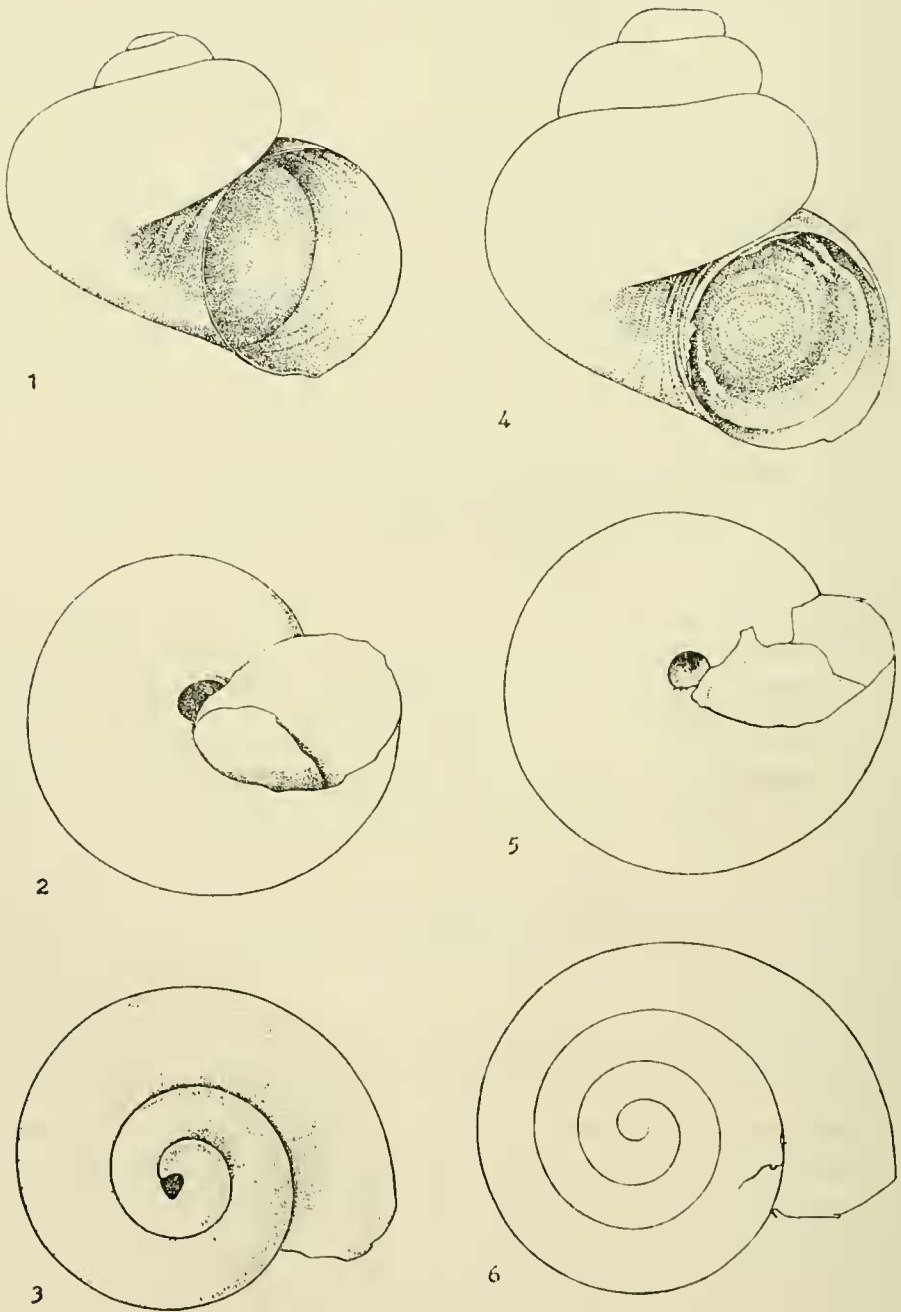
(Figs. 1, 2, 3)

*Description*—Shell small, broadly conic, thin and very fragile, opaque, straw-colored; whorls 3 to 3.5, well-rounded, the last whorl barely appressed to the preceding whorl, sutures very deep, nuclear whorl raised; umbilicus open, about one-sixth the diameter of the shell; aperture round, peristome continuous, barely attached to the preceding whorl or sometimes free, lip thin, slightly sinuous, columellar margin not reflected or bent. Operculum corneous, paucispiral, with about 3 whorls, nucleus a little below the center.

Animal white and blind, without any trace of eyes; verge bifid, rather stout; central tooth of the radula with 11 denticles on the reflection, one moderately large mesocone and 5 ectocones on each side; lateral tooth with 8 denticles, one rather large mesocone, 3 entocones, and 4 ectocones; marginal teeth with numerous small denticles.

Height 2.4 mm., diameter 2.7 mm., aperture height 1.0 mm., diameter 1.0 mm., umbilicus diameter 0.4 mm., 3.2 whorls. Holotype.

*Distribution*—Missouri: Perry Co: stream in Tom Moore Cave, 3 miles north of Perryville, holotype 164173 and paratypes 164172, Field Museum of Natural History, other paratypes 38750, collection of the author; stream in Berome Moore Cave, 3.5 miles northeast of Perryville (Stewart Peck, coll.). These two caves are part of one cave system. The same stream flows through both.



Figs. 1, 2, 3, *Amnicola stygia* Hubricht, holotype. Figs. 4, 5, 6, *Antrobia culveri* Hubricht, holotype.

*Remarks*—*Amnicola stygia* appears to be most closely related to *A. limosa* (Say), the verges being identical. The shell, however, is quite different. It is more depressed, being wider than high; with a more open umbilicus. The aperture is circular, and the shell has fewer whorls. In life the shells are coated with a thick black deposit.

*Antrobia*, new genus

*Description*—Shell small, conical, higher than wide, whorls 3.5, aperture roundly oval; peristome continuous, lip simple, columella not thickened; umbilicus open; operculum thin, subhyaline, paucispiral. Animal white and blind; verge simple, tapering to a point, without appendages, attached to the center of the back and lying on the right side, when at rest curled forward in nearly a full circle so that the tip rests at the center of the back near the point of attachment. Radula similar to that of *Amnicola* but the mesocone of the central tooth is not enlarged, being only slightly larger than the adjacent ectocones, there are 5 ectocones on each side and 2 basocones; lateral teeth with 8 denticles which are very similar in size; marginals with numerous very fine teeth; the denticles of the central and lateral teeth are about as long as wide and are blunt; the teeth of the marginals are slender and sharp.

Type species: *Antrobia culveri*, new species.

*Antrobia culveri*, new species

(Figs. 4, 5, 6)

*Description*—Shell small, conical, pale-yellow, subhyaline; whorls 3.5, well-rounded, the last whorl lightly appressed to the preceding whorl, sutures deep, nuclear whorl depressed; umbilicus open, about 6.5 times in the diameter of the shell; aperture nearly round, peristome complete across parietal margin, adnate to preceding whorl; lip thin, sinuous, columellar margin straight, basal and outer margins well rounded; sculpture of many fine spiral lines; operculum corneous, paucispiral, with about 3.5 whorls, nucleus a little below and to the left of center.

Animal white and blind, without any trace of eyes, verge simple, tapering to a point, oval in cross section, attached to the center of the back and lying on the right side; central tooth of the radula with 11 denticles on the reflection, the mesocone only slightly larger than the adjoining ectocones, 5 ectocones on each side; lateral tooth with 8 denticles, 3 entocones, 1 small mesocone,

and 4 ectocones; marginal teeth with numerous small denticles.

Height 2.3 mm., diameter 2.0 mm., aperture height 1.2 mm., diameter 1.1 mm., umbilicus diameter 0.3 m., 3.5 whorls. Holotype.

*Distribution*—Missouri: Taney Co.: stream in Tumbling Creek Cave, 4.5 miles northeast of Protem (David Culver; Thomas Aley; L. Hubricht, colls.), holotype 164171 and paratypes 164170 FMNH., other paratypes 36263, 36840, 38780 collection of the author.

*Antrobia culveri* could not be readily confused with any other species of Hydrobiidae of the central United States. The only species with which the shell might be confused is *Amnicola stygia*, but in that species the shell is wider than high and the nuclear whorl is not depressed.

My thanks to Field Museum of Natural History, Chicago, for having Miss Claire Vanderslice, Illustrator in Lower Invertebrates, prepare the shell figures used in this paper.

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## THE ECOLOGICAL SIGNIFICANCE OF THYASIRA BISECTA CONRAD<sup>1</sup>

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Specimens of *Thyasira bisecta* Conrad have been reported from Cenozoic strata ranging in age from Eocene to Pleistocene in the northern Pacific (Taiwan, Japan, Sakhalin, Kamchatka, Alaska, Washington, Oregon, California). Because most of these occurrences are from dark-colored muddy rocks, this bivalve has generally been regarded as a deep-water species. Included herein are several records of living specimens of *T. bisecta* from the northwestern coast of North America and from the Japanese Islands. These data modify some of the earlier concepts of this species as an indicator of a deep-water environment.

*Thyasira bisecta* has great variation in shape, and some paleontologists have considered these variations as distinct species or subspecies, whereas others have considered all these variations in form as a single species. I have observed these variations in shape but am inclined to consider them as one species. Krishtofovich's (1936) "*Thyasira bisecta* group" is the same as my broad

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<sup>1</sup> Submitted in honor of Leo George Hertlein; see vol. 84, no. 2, Oct. 1970.